

## **ABSTRACT**

**TITLE:"MORPHOMETRIC STUDY OF THE ORBIT IN HUMAN DRY SKULLS AND HIGH RESOLUTION COMPUTED TOMOGRAPHIC SCANS"**

**AUTHORS: DR.SUBBULAKSHMLA<sup>1</sup>, DR.M.JAMUNA<sup>2</sup>, DR.ELANGO<sup>3</sup>.**

**<sup>1</sup> Postgraduate student,   <sup>2</sup>The Professor & HOD,   <sup>3</sup>The professor,**

**Department of Anatomy,   Department of Anatomy,   Department of Radiology,  
PSG IMS&R.**

**AFFILIATION:** Department of anatomy, PSG Institute of Medical Sciences and Research, Coimbatore, MGR University

## **INTRODUCTION:**

The orbital cavity is affected by several orbital diseases like congenital orbital dysplasia, orbital fractures and intraorbital tumors. These deformities of orbital cavity result in enophthalmos and proptosis which leads to apparent disfigurement of face. The fracture complexes of both medial wall and floor of orbit produce expansion of bony orbital volume in which enophthalmos is the predicted complication. In these cases surgical reconstruction of orbital cavity is required to reconstitute the orbital volume to its prepathological state and to reposition the eye globe to its normal position. The quantitative morphometry of orbital cavity is utmost important for reconstructive surgeries.

## **AIM AND OBJECTIVE:**

To study the morphometry of orbital cavity in adult dry skulls and high resolution computed tomographic scans.

## **MATERIALS AND METHODS:**

The quantitative morphometry of orbital cavity was studied in 40 adult dry skulls and computed tomographic images of brain belonging to 60 patients (30 males and 30 females). In adult dry skulls, measurements were taken by using digital vernier caliper. In computered tomographic images of brain, measurements were taken in bone window of two dimensional image after superimposing the reference point of 3D image. The morphometric parameters observed were orbital height, orbital breadth, orbital index, superior wall length, inferior wall length, medial wall length, lateral wall length, inter orbital distance, bi orbital distance, orbital rim perimeter, orbital foramen area and bony orbital volume.

## **OBSERVATION AND RESULTS:**

In both adult dry skulls and ct images, the mean orbital index was less than 83 which classified the orbital cavity of south Indian population under microseme category. No statistical significant difference was found between the morphometric measurements of right and left orbital cavities in both dry skulls and ct images. The medial wall length, orbital rim perimeter, orbital foramen area and bony orbital volume were found to be significantly higher in male when compared with female in ct images. The significant changes in the orbital cavity with increasing age was

observed in ct images. The influence of other parameters over bony orbital volume was assessed.

## **CONCLUSION:**

The quantitative orbital morphometry is very essential for diagnosis of orbital fractures, prediction of enophthalmos, planning for reconstructive surgery and prediction of outcome after surgery.

**KEY WORDS:** orbital cavity, quantitative morphometry, dry skulls, ct images